REMARKS/ARGUMENTS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

The drawings were objected to because Figs. 10, 11, 12(a)-(e) and 13 were not labeled correctly. The drawings have been amended herein to add the legend --Prior Art-- to each of these figures.

The title has been objected to as being non-descriptive. The title has been amended herein to read: "MAGNETON HAVING SPECIFIC DIMENSIONS FOR SOLVING NOISE PROBLEM" as suggested by the examiner.

Claims 1 and 2 were objected to for informalities. Appropriates corrections have been made by amendment herein.

Claims 1 and 2 were rejected under 35 U.S.C. 103(a) over Fig. 11 of the Applicants' admitted prior art (hereinafter "AAPA") in view of U.S. Patent No. 4,742,272 to Kusano et al. (hereinafter "Kusano"). For the following reasons the rejection is respectfully traversed.

The Examiner states that "Fig. 11 of the AAPA does not show a condition that is $1.85Ra \leq (Rs1+Rs2)/2 \leq 1.96Ra$" as in claim 1. Thus, Kusano is relied upon by the Examiner for this teaching.

Applicant respectfully submits that Kusano does not teach or suggest that "$1.85Ra \leq (Rs1+Rs2)/2 \leq 1.96Ra$" where "a radial dimension of an *outer circumference* of the small-diameter strap ring is '$Rs1$'" and "a radial dimension of an *inner circumference* of the large-diameter strap ring is '$Rs2$,'" as required. Rather, Kusano considers the mean diameters of the strap rings, not the *inner* and *outer* circumferences as in claim 1. Further, with reference to Fig. 6 of Kusano, the diameters, Di and Dj are measured from the center of the thickness of the strap rings (70a, 70b). Therefore, if strap rings of varying thickness are used, the calculated mean diameter of the vane would be different from the mean diameter of the vane based on the inner dimension of the larger ring and the outer dimension of the smaller ring, as in claim 1. This difference is mathematically illustrated below in more detail.

According to Kusano, the algebraic mean diameter Da of the diameters Di and Dj of the strap rings (Da+(Di+Dj)/2) is set to range 1.75 to 1.95 times the inner diameter Db of the vane. This will be discussed in detail with reference to Figure A below.

FIGURE A
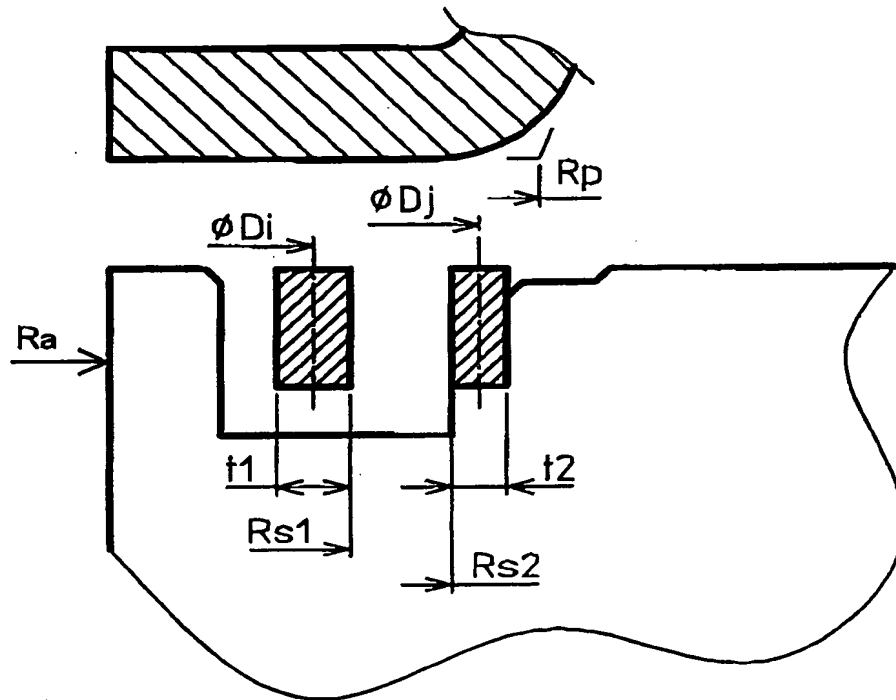
In Figure A, we have defined thickness of the strap rings as t1 and t2. Based on Figure A, the relationship of the radii of the strap rings and the vane of Kusano is represented as follows:

$$1.75Ra \leq \{Rs1-t1/2+Rs2+t2/2)/2\} \leq 1.95Ra$$

⇕

$$1.75Ra \leq \{Rs1+RS2)/2+ (t2-t1)/4\} \leq 1.95Ra$$

⇕

$$\{1.75Ra+(t1-t2)/4\} \leq (Rs1+Rs2)/2 \leq \{1.95Ra+(t1-t2)/4\}$$

As is apparent from the above, according to the teachings of Kusano, the calculation includes the

thickness of the strap rings. Therefore, if there is much difference in thickness between the two strap rings, the mathematical relationship of the radii of the strap rings to the radius of the vane will differ from that of the present invention. For example, when $t1=2.8$, $t2=0.4$, $Ra=4.0$, then the item $(t1+t2)/4$ is 0.6. Wirth $Ra=4.0$, the calculated 0.6 corresponds to $0.15Ra$. Therefore, in this case, the relationship shown in Kusano is represented by $1.9Ra \leq (Rs1+Rs2)/2 \leq 2.1Ra$. This is substantially different from the presently claimed relationship, $1.85Ra \leq (Rs1+Rs2)/2 \leq 1.96Ra$. Thus, Kusano clearly does not meet the limitations of claim 1.

Further regarding claim 1, neither Kusano nor the AAPA teaches or suggests that "$Rs1 \leq Rp \leq Rs2$," as required. Although, as the Examiner points out, the magnetron illustrated in FIG. 11 of AAPA meets this limitation, there is nothing in AAPA that requires or suggests that this mathematical relationship to be maintained or provides any motivation for doing so. According to the present invention, a radius Rp of a central flat portion of the magnetic piece located in vicinity of the anode vanes is defined by the relationship shown in claim 1. That is, $1.85Ra \leq (Rs1+Rs2)/2 \leq 1.96Ra$ and $Rs1 \leq Rp \leq Rs2$. The radius Rp is very important in determining the characteristics of the magnetic field. According to the invention, the radius Rp is optimally set, and bandwidth of base wave noise and oscillation efficiency are changed as shown in Figs. 4 and 8. The bandwidth of base wave noise and the oscillation efficiency are very important characteristics for the magnetron of the present invention. Nothing in Kusano suggests setting the radius Rp to control these characteristics. Moreover, Kusano does not even discuss magnetic flux density.

For all of the above reasons, every limitation of the claim is not taught or suggested by AAPA or Kusano or any combination thereof. Thus, claim 1 and dependent claim 2 are patentable over the prior art of record.

Claim 3 was rejected under 35 U.S.C. 103(a) over Fig. 11 of the AAPA in view of Kusano and in further view of U.S. Patent No. 5,049,782 to Aiga et al. Claim 3 depends from claim 1. As explained above with regard to claim 1, the combination of AAPA and Kusano does not teach or suggest every limitation of the claim. Aiga does not teach or suggest these deficiencies of AAPA and Kusano.
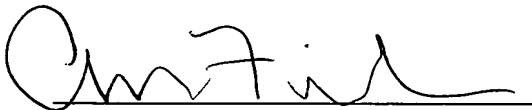
Therefore, for the same reasons as stated with regard claim 1, claim 3 is patentable over the prior art of record.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 35862.

Respectfully submitted,

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